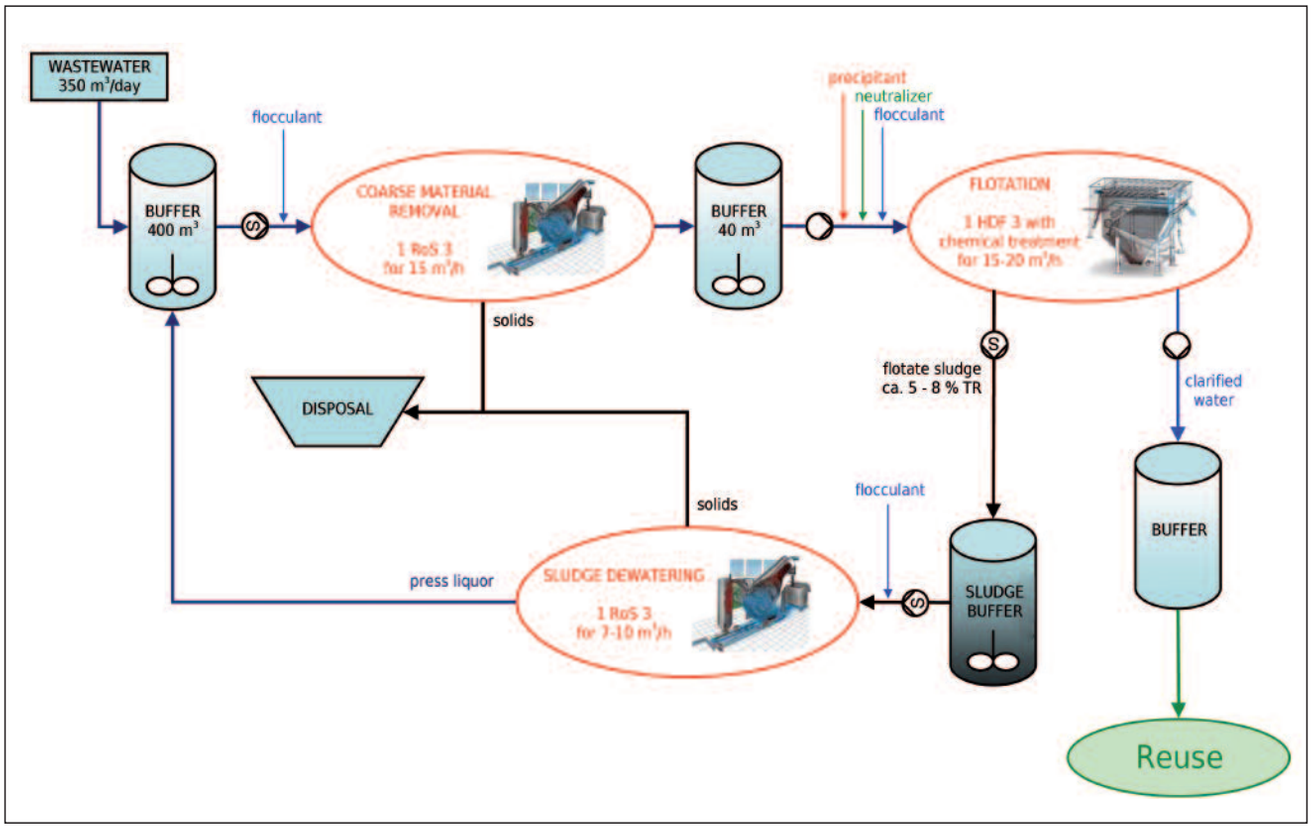
# Another reference installation in a wood industry company: Pfleiderer AG, North America

Pfleiderer AG with its 5,600 employees at 22 locations in North America and Western and Eastern Europe produces HDF and MDF products for furniture industries, specialized and do-it-yourself trade and the interior construction market. Pfleiderer supplies a wide range of carrier materials and surface finishing products to customers in more than 80 countries worldwide. Pfleiderer's subsidiary Uniboard has moved from La Baje, Canada to Moncure in North Carolina, USA with the aim to become the US market leader in the manufacture of laminate floorings. At its new location, Uniboard has production capacity for more than 1,600,000 m3 chipboards and medium and high density fibreboards per year. About 1,400 employees are working for Uniboard at Moncure.

In the process of MDF fibreboard production, wastewaters with high pollution loads are generated at different places. These wastewaters show very high solids concentrations (DS) of 4,000 mg/l and COD load of more than 15,000 mg/l. Most innovative wastewater treatment technology is applied to treat the wastewater as perfectly as possible to make it available to be reused in the MDF production process or for exhaust air cleaning. Approximately half of the total wastewater is generated in washing processes and during pressing of the chips before these are introduced into the drum dryer. The other half of the wastewater is generated in the exhaust air treatment process that consists of a wet electric filter with integrated washer and a biofilter. Normally, the exhaust air from the drum dryers is treated in this way.

Pfleiderer Schweiz AG, Switzerland contacted HUBER at the end of 2008 with the request to cooperate in developing a concept for the treatment of different process flows from a refiner (defibrator), press water and exhaust air treatment. Their focus was on reuse and recycling of process water to minimize their consumption of fresh water. Due to the excellent experience made in

*HUBER ROTAMAT® Screw Press RoS 3*




*Wastewater treatment concept*

the treatment of similar wastewaters at Kronospan, Switzerland, the treatment concept was clear very soon:

The wastewater flow of approx. 15 m³/h is prescreened by a curved screen prior to being passed to a 400 m³ mixing and balancing tank where the flow with its different freights and pH values is equalized.

The RoS3 Screw Press is fed with the constant equalized flow. By addition of flocculants, COD values can be reduced to approx. 8,250 mg/l and DS to approx. 1,600 mg/l. The Screw Press effluent flows by gravity into a 40 m³ storage tank from where a constant volume flow of approx. 15 – 20 m³/h is pumped into the dissolved air flotation plant HDF 3 with chemical treatment stage. This chemical treatment includes precipitation with FeCl3 followed by pH correction. Flocculants are added after the pH raise to 7 to generate macroflocs from the colloids and flotate them by means of micro bubbles in the dissolved air flotation plant. The flotate sludge produced is dewatered by another RoS3 Screw Press unit. The dissolved air flotation plant with chemical treatment stage allows to reduce COD to 4,125 mg/ and DS to below 110 mg/l. The virtually solids-free flotation effluent is introduced into sandfilters prior to being treated in a reverse osmosis plant. The treated process water can now be reused in the MDF manufacturing process, for example in the gluing process, wood chip washing or exhaust air treatment. With this wastewater treatment concept, Uniboard is able to operate its production with zero discharge of water.

A major benefit of our solution is the reduced consumption of chemicals. Pretreatment with the Screw Press RoS3 reduces solids by 60 % as mentioned above. Otherwise, precipitant consumption would be very high as the fine suspended matter would cause the precipitant to be reacted to exhaustion. Another advantage is the small design of the flotation plant. Due to pre-treatment with the Screw Press RoS3, a smaller flotation plant is sufficient, as the limiting factor with flotation is the solids feed per m² and hour.

After installation and successful start-up in April 2010, the plant has proven its efficiency in achieving the required guarantee values.

Due to our extensive experience in the treatment of wastewaters generated in wood industries, we have been successful in implementing another reference project at Pfleiderer AG, USA, in addition to our multiple other reference installations.

**Alexander Ghazinuri**
**Business Unit Industry**